

REMARKS

Applicants have amended their claims in order to further clarify the definition of various aspects of the present invention. Specifically, Applicants have cancelled independent claims 9, 12, 13 and 14 without prejudice or disclaimer, and have substituted therefor new claims 16-19, respectively. As compared with previously considered claims 9, 13 and 14, presently submitted claims 16, 18 and 19 recite that the third plate extends in a thickness direction of the hollow frame member; recite that the hollow frame member also includes a plurality of ribs arranged in a form of trusses to connect the first and second plates; recite that the substantially horizontal surface (and, where appropriate, the further substantially horizontal surface) faces outwardly in the thickness direction of the hollow frame member; recite that the substantially horizontal surface (and, where appropriate, the further substantially horizontal surface) is positioned in a range, in the horizontal direction, of thickness of the third plate; recite that the recessed portion is provided at a connection portion of the third plate and one end of the first plate, with a corner portion from the first plate to the recessed portion being positioned in a range of an extension of the third plate; and recite that the third plate sustains a vertical force produced by the rotary tool during the friction stir welding, and that a raised portion is protruded from the first plate outside toward a side of the rotary tool and is plasticized by the rotary tool during the friction stir welding (claim 18 also reciting a second raised portion protruded from the second plate outside toward the side of the rotary tool and is plasticized by the rotary tool during the friction stir welding).

Claim 17, as compared with previously considered claim 12, recites that the member comprises a first plate, a second plate which is substantially in parallel to the first plate, a third plate for connecting one end of the first plate and one end of

the second plate, this third plate being substantially perpendicular to the first plate and substantially perpendicular to the second plate, and a plurality of ribs arranged in a form of trusses to connect the first and second plates; recites that the recessed portion includes one substantially horizontal surface facing outwardly in the thickness direction of the member, with the recessed portion of the one outer face being provided at a connection portion of the third plate and the one end of the first plate, a corner portion of the first plate to the recessed portion being positioned in a range of an extension of the third plate; recites that the recessed portion of the another outer face is defined, inter alia, by another substantially horizontal surface facing outwardly in the thickness direction of the member, the recessed portion of the another outer face being provided at a connection portion of the third plate and the one end of the second plate, with a corner portion from the second plate to the recessed portion being positioned in a range of the extension of the third plate; recites that the one and another substantially horizontal surface are positioned in the range, in the horizontal direction, of the thickness of the third plate; and recites that the third plate sustains a vertical force produced by the rotary tool during the friction stir welding, and recites that first and second raised portions are protruded respectively from the first and second plates outside toward a side of the friction tool and is plasticized by the rotary tool during the friction stir welding.

In light of newly added claims 16-19, claim 3, in addition to claims 9 and 12-14, has been cancelled without prejudice or disclaimer, and various of the previously considered claims have been amended, including dependencies thereof. In addition, claim 15 has been further amended to recite that at one end of the second plate, a second recessed portion is provided; to recite that the second recessed portion is defined, inter alia, by a further substantially horizontal surface facing outwardly in the

thickness direction of the hollow frame member; and to recite that this further substantially horizontal surface is positioned in a range, in the horizontal direction, of thickness of the third plate.

In addition to newly added claims 16-19, Applicants are adding new claims 20-24 to the application. These claims 20-24 recite that the substantially horizontal surface, or further substantially horizontal surface, or one and another substantially horizontal surfaces, are positioned “adjacent” the third plate, in the range, in the horizontal direction, of thickness of the third plate.

The Examiner is thanked for the telephone interview, initiated by the Examiner, in connection with the above-identified application, reported on page 6 of the Office Action mailed February 20, 2007. The undersigned confirms that during the interview, discussions were conducted concerning the meaning of language in previously considered claims. The Examiner is also thanked for the suggestions for claim amendments in the Office Action mailed February 20, 2007; as will be discussed infra, various of these suggestions have been accepted in the claims as presently submitted.

The rejection of claims under the second paragraph of 35 USC 112, as set forth in Item 3 on pages 2-4 of the Office Action mailed February 20, 2007, is noted. Especially in view of present amendments to the claims, and the following arguments, it is respectfully submitted that this rejection is moot. Thus, in connection with “said thickness direction” in previously considered claim 9, note that claim 16 recites that the third plate extends in a thickness direction of the hollow frame member, thus providing antecedent basis for this “thickness direction”. The suggestion by the Examiner to amend the language of lines 15 and 16 of claim 9 to

--is positioned adjacent the third plate in the range of the thickness of the third plate-- is noted with thanks. In claim 16 as presented for consideration by the Examiner, as well as in the other newly added independent claims (17-19), it is recited that the substantially horizontal surface is positioned in a range, in the horizontal direction, of thickness of the third plate. It is respectfully submitted that this sufficiently defines the position of the substantially horizontal surface so as to satisfy requirements of the second paragraph of 35 USC 112.

In any event, attention is respectfully directed to claims 20-24, further defining positioning of the substantially horizontal surfaces, recitations in claims 20-24 corresponding to the suggestion by the Examiner as to positioning of the substantially horizontal surfaces, on pages 2-4 of the Office Action mailed February 20, 2007.

Claim 16 recites a "first" corner portion, making clear the "second" corner portion. As claim 16 recites a corner "portion"; it is respectfully submitted that this term accurately defines the claimed structure, including the corners.

In claim 19, Applicants recite that the third plate extends in a thickness direction of the hollow frame member, providing antecedent basis for the "thickness direction" later in this claim. Applicants have provided language in claims 19 and amended claim 15 corresponding to that in claim 16, discussed previously, with respect to positioning of the substantially horizontal surfaces; in view thereof, it is respectfully submitted that positioning of the substantially horizontal surface in claims 19 and 15 is sufficiently defined so as to satisfy requirements of the second paragraph of 35 USC 112. In any event, clearly claims 23 and 24 satisfy requirements of the second paragraph of 35 USC 112, with respect to positioning of the substantially horizontal surfaces.

The suggestion by the Examiner for inserting the word “outwardly” after “facing” in various of the claims has been accepted, in presently amended claim 15 and newly added claims 16-19.

In view of the present amendments, reconsideration and withdrawal of the rejection under the second paragraph of 35 USC 112 are respectfully requested. If the Examiner is of the opinion that any issues remain in connection with this rejection under the second paragraph of 35 USC 112, the Examiner is respectfully requested to contact the undersigned so as to work out appropriate language overcoming any such remaining issues. The Examiner is thanked in advance for cooperating with this request.

The undersigned notes the indication by the Examiner in Item 6 on page 5 of the Office Action mailed February 20, 2007, with respect to allowable subject matter.

In addition, Applicants respectfully submit that all claims presently in the application patentably distinguish over the teachings of the prior art applied by the Examiner in the Office Action mailed February 20, 2007, that is, the teachings of U.S. Patent No. 3,984,961 to Chieger et al., under the provisions of 35 USC 102 and 35 USC 103.

Initially, note that claim 17, corresponding to previously considered claim 12, recites a corner portion from the first plate to the recessed portion, and recites that this corner portion is positioned in a range of an extension of the third plate. Again noting the indication by the Examiner in Item 6 on page 5 of the Office Action mailed February 20, 2007, it is respectfully submitted that in view of recitation of the corner portion in claim 17, claim 17 (and any claims depending thereon) should be allowed.

In connection with claim 18, it is respectfully submitted that Chieger et al. would have neither taught nor would have suggested such hollow frame member of

the present claims, having, inter alia, the recessed portion defined by a substantially vertical surface facing outwardly in a horizontal direction, laterally to the thickness direction of the hollow frame member, and by a substantially horizontal surface facing outwardly in the thickness direction of the hollow frame member, with the substantially horizontal surface being positioned in a range, in the horizontal direction, of thickness of the third plate, with this recessed portion being a portion capable of having the friction stir welding carried out therein by inserting a rotary tool therein, the third plate sustaining a vertical force produced by the rotary tool during the friction stir welding, and with a raised portion being protruded from the first plate outside toward a side of the rotary tool and is plasticized by the rotary tool during the friction stir welding. See claim 18.

By utilizing the recessed portions including the horizontal surface thereof, and by including the raised portion, a good friction stir welding can be obtained. Specifically, through use of the recessed portions, including the substantially horizontal surface, and with the raised portion, deformation of the member subjected to the friction stir welding can be avoided, and a good friction stir welding can be carried out, e.g., avoiding an indentation at the location of the friction stir welding. Note, e.g., pages 6-9 of Applicants' specification; note also the paragraph bridging pages 9 and 10 thereof.

Chieger et al. discloses a floor of a container which includes a plurality of hollow extruded metal boards. The floor boards at the center of the floor have vertically disposed ribs to maximize resistance to horizontal bending moments and crushing loads, while the boards adjacent the sides of the container have angularly disposed ribs to maximize the resistance thereof to shear loads. The boards are secured together by welding, top and bottom flanges on each board extending into

complementary notches in the top and bottom, respectively, of an adjacent board to facilitate the welding. Note, in particular, column 1, lines 15-24. See also column 1, line 60, to column 2, line 5.

As can be seen, for example, in Fig. 2 of this patent, the side or edge webs 22 extend beyond the edge of the board 31 provided with the side webs 22. In particular, note that the vertical webs 22 extend beyond substantially horizontal portions of the notches 24 and 25. It is respectfully submitted that this patent does not disclose, nor would have suggested, the structure as in the present claims, including, inter alia, wherein the substantially horizontal surface facing outwardly in the thickness direction of the member is positioned in a range, in the horizontal direction, of thickness of the third plate, and advantages achieved thereby, particularly in friction stir welding the member.

Moreover, it is respectfully submitted that Chieger et al. is silent in connection with structure capable of having a friction stir welding carried out thereon. Note especially the relatively thin sheet material in Chieger et al., and positioning of structure (e.g., a vertical surface web 22 and the notches 24 and 25 in Chieger et al.). It is respectfully submitted that this reference does not disclose, nor would have suggested, recessed portions being portions capable of having friction stir welding carried out therein by inserting a rotary tool therein, particularly wherein such portions are further defined by, in the friction stir welding, a center of the rotary tool utilized in the friction stir welding is inserted into the member and is substantially coincided with an extension line of the substantially vertical surface facing outwardly laterally to the thickness direction of the hollow frame member.

The statement by the Examiner that he “fails to see how the tool defines any property or structure to the members” is noted. It is respectfully submitted that the

presently claimed structure must be capable of being friction stir welded. It is respectfully submitted that this is a property of the presently claimed structure. As indicated previously, it is respectfully submitted that it has not been shown that the structure in Chieger et al. is capable of being friction stir welded.

It is again noted that the present claims recite a raised portion, which provides advantages as discussed in the foregoing. Clearly, Chieger et al. would have neither taught nor would have suggested the presently claimed structure, including such raised portion.

In view of the foregoing comments and amendments, reconsideration and allowance of all claims presently pending in the above-identified application are respectfully requested.

Applicants request any shortage of fees due in connection with the filing of this paper be charged to the Deposit Account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case No. 503.35255VX6), and credit any excess payment of fees to such Deposit Account.

Respectfully submitted,
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